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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Rapaich

Title: DIGITAL YUV VIDEO EQUALIZATION AND GAMMA CORRECTION

Docket No.: 450.221US1

Serial No.: 09/217873

Filed: December 21, 1998

Due Date: March 22, 2003 (Saturday)

Examiner: Paulos Natnael

Group Art Unit: 2614

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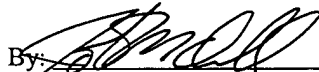
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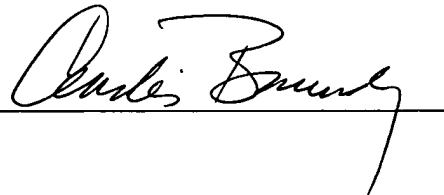
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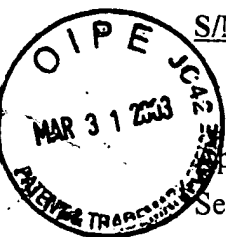
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S/N 09/217,873

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Rapaich, Mark	Examiner: Paulos Natnael
Serial No.:	09/217,873	Group Art Unit: 2614
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Title:	DIGITAL YUV VIDEO EQUALIZATION AND GAMMA CORRECTION	

**APPEAL BRIEF TO THE BOARD OF
PATENT APPEALS AND INTERFERENCES OF THE
UNITED STATES PATENT AND TRADEMARK OFFICE**

Box AF
Assistant Commissioner for Patents
Washington, D.C. 20231

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Sir:

Appellant's Brief on Appeal

This brief is presented in support of the Notice of Appeal filed on January 22, 2003, from the final rejection of claims 1-11 of the above identified application. The Advisory Office Action from which the Appellant hereby appeals was mailed on December 23, 2002.

The appeal brief is filed in triplicate. Please charge the requisite fee set forth in 37 C.F.R. § 1.17(f) to Deposit Account 50-0439. Appellant respectfully requests reversal of the Examiner's rejection of pending claims 1-11. Appellant reserves the right to request an Oral Hearing at a later date.

Real Party in Interest

The present application has been assigned to Gateway, Inc., a corporation organized and existing under and by virtue of the laws of the State of Delaware, and having an office and place of business at 610 Gateway Drive, P.O. Box 2000, North Sioux City, SD 57049-2000.

Related Appeals and Interferences

There are no other present appeals or interferences known to the Appellant which will have a bearing on the Board's decision in the present appeal. The pending application has been previously appealed to overcome similar prior art rejections.

Status of the Claims

? Sixteen claims are pending in the application. The examiner has rejected all of the claims. The rejected claims 1-11 are the subject of the present appeal.

Status of the Amendments

Amendments subsequent to the Final Office Action were indicated as entered in the Advisory Action of 1/13/2003. The pending claims listed in Appendix A reflect the current state of the claims including those amendments.

Summary of the Invention

The claims of the present invention are directed to, in various embodiments, a personal computer system comprising a digital YUV video signal source, a video output, and a digital processor computationally employing a corrective algorithm that applies gamma correction to the digital YUV signal provided by the video source and provides a corrected signal to the video output.

Issues Presented for Review

Whether claims 1-3, 5-8 and 10 are unpatentable over Aleksic et al. (US 6,020,921) under 35 USC §102(e).

Whether claims 4 and 9 are unpatentable over Aleksic et al. (US 6,020,921) 35 USC §103(a).

Whether claim 11 is unpatentable over Aleksic et al. (US 6,020,921) in view of Warren et al. (US 6,034,300) under 35 USC §103(a).

Grouping of the Claims

All claims vary in scope and in limitations and are therefore independent of one another, and each stands alone for purposes of this appeal.

Claims 2-5 depend from claim 1, and so are believed to be allowable for the same reasons as claim 1 as well as for their own distinct recited elements.

Claims 7-10 depend from claim 6, and are believed to be allowable for the same reasons as claim 6 as well as for their own distinct recited elements.

Argument

Rejections Under 35 U.S.C. § 102

1) *The Applicable Law*

Anticipation requires the disclosure in a single prior art reference of each element of the claim under consideration. *In re Dillon* 919 F.2d 688, 16 USPQ2d 1897, 1908 (Fed. Cir. 1990) (en banc), cert. denied, 500 U.S. 904 (1991). Anticipation further “requires the presence in a single prior reference disclosure of each and every element of the claimed invention, *arranged as in the claim.*” *Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 221 USPQ 481, 485 (Fed. Cir. 1984) (citing *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 220 USPQ 193 (Fed. Cir. 1983)) (emphasis added).

2) *Discussion of the Rejections*

Claims 1-3, 5-8 and 10 presently stand rejected over Aleksic et al. (US 6,020,921) under 35 USC § 102(e).

Aleksic discusses in col. 1, lines 37-39, and in column 2, lines 64-65, that a lookup table read-only memory (ROM) is typically required to perform gamma correction of a YUV signal. Aleksic claims improvement on the read-only memory gamma correction system by implementing three circuits to perform straight-line approximation of a gamma correction curve, and switching between these three circuits based on a comparison circuit that makes a circuit selection determination based on the received input.

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Yes, it does. page 6 of Specs.

In contrast, the present invention utilizes and claims a digital processor employing a corrective algorithm that applies gamma correction to a digital YUV signal. That is, the present invention does not utilize a lookup table or switch between circuitry employing straight-line approximations of a gamma correction curve as are discussed in Aleksic, but instead utilizes a digital processor to computationally apply a corrective algorithm to the digital YUV signal to perform gamma correction.

Applicant has attempted in prosecution to emphasize the computational nature of the present invention's pending claims, including recent amendment to the claims reciting "a digital processor computationally employing a corrective algorithm via computational calculation that applies gamma correction...".

The Examiner's reply centers around citation of a portion of the specification (p. 6, ln. 20-24) in which one specific embodiment of the invention employs a lookup table to provide gamma values determined at a plurality of signal levels as a reference, but which is further recited as employing a least squares fit polynomial equation to calculate the actual gamma correction values used from the reference values in the table. Although the present invention may therefore use a lookup table in some embodiments of the present invention not explicitly recited in the claims, it still does so only in the context of performing a computational calculation in a digital processor, which is recited in the claims and is lacking from the cited Alkesic reference.

Because the present invention does not simply use a lookup table to perform gamma correction, but employs computational calculation in a digital signal processor to perform gamma correction whether aided by a lookup table or not, Alkesic's mere recitation of a lookup table does not anticipate the present invention. As the cited reference fails to teach the element of the digital processor employing a corrective algorithm via computational calculation, applicant believes that claims 1 and 6, and the claims that depend therefrom, are in condition for allowance. Reversal of the rejections of these pending claims is therefore respectfully requested.

Rejections Under 35 U.S.C. § 103

1) The Applicable Law

The Examiner has the burden under 35 U.S.C. § 103 to establish a *prima facie* case of obviousness. *In re Fine*, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). To do that the Examiner must show that some objective teaching in the prior art or some knowledge generally available to one of ordinary skill in the art would lead an individual to combine the relevant teaching of the references. *Id.*

The court in *Fine* stated that:

Obviousness is tested by "what the combined teaching of the references would have suggested to those of ordinary skill in the art." *In re Keller*, 642 F.2d 413, 425, 208 USPQ 871, 878 (CCPA 1981)). But it "cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination." *ACS Hosp. Sys.*, 732 F.2d at 1577, 221 USPQ at 933. And "teachings of references can be combined *only* if there is some suggestion or incentive to do so."

Id. (emphasis in original).

The M.P.E.P. adopts this line of reasoning, stating that

In order for the Examiner to establish a *prima facie* case of obviousness, three base criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on Appellant's disclosure.

M.P.E.P. § 2142 (citing *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed.Cir. 1991)).

An invention can be obvious even though the suggestion to combine prior art teachings is not found in a specific reference. *In re Oetiker*, 24 USPQ2d 1443 (Fed. Cir. 1992). At the same time, however, although it is not necessary that the cited references or prior art specifically suggest making the combination, there must be some teaching somewhere which provides the suggestion or motivation to combine prior art teachings and applies that combination to solve the

same or similar problem which the claimed invention addresses. One of ordinary skill in the art will be presumed to know of any such teaching. (See, e.g., *In re Nilssen*, 851 F.2d 1401, 1403, 7 USPQ2d 1500, 1502 (Fed. Cir. 1988) and *In re Wood*, 599 F.2d 1032, 1037, 202 USPQ 171, 174 (CCPA 1979)).

The test for obviousness under §103 must take into consideration the invention as a whole; that is, one must consider the particular problem solved by the combination of elements that define the invention. *Interconnect Planning Corp. v. Feil*, 774 F.2d 1132, 1143, 227 USPQ 543, 551 (Fed. Cir. 1985). Furthermore, claims must be interpreted in light of the specification, claim language, other claims and prosecution history. *Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1561, 1568, 1 USPQ2d 1593, 1597 (Fed. Cir. 1987), *cert. denied*, 481 U.S. 1052 (1987). At the same time, a prior patent cited as a § 103 reference must be considered in its entirety, "*i.e.* as a whole, including portions that lead away from the invention." *Id.* That is, the Examiner must, as one of the inquiries pertinent to any obviousness inquiry under 35 U.S.C. § 103, recognize and consider not only the similarities but also the critical differences between the claimed invention and the prior art. *In re Bond*, 910 F.2d 831, 834, 15 USPQ2d 1566, 1568 (Fed. Cir. 1990), *reh'g denied*, 1990 U.S. App. LEXIS 19971 (Fed. Cir. 1990). Finally, the Examiner must avoid hindsight. *Id.*

2) *Discussion of the Rejections*

Claims 4 and 9 presently stand rejected over Aleksic et al. (US 6,020,921) 35 USC § 103(a).

The Examiner argues in the Advisory Action of January 13, 2003, that this rejection was intended to reject claims 4 and 9 over Alkesic in view of Margulis et al. (U.S. 6,340,994), which applicant has not previously had the opportunity to address despite the Final Rejection status of the pending claims. Margulis is relied upon to show that MPEG, NTSC, and certain other video formats are desired to be handled in digital display systems.

Alkesic, and its differences from the present invention, are discussed in detail above in reference to the §102 rejection, and that discussion is hereby incorporated by reference. These claims are believed to be in condition for allowance for the same reasons as are their parent

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claims 1 and 6, and are therefore believed to be allowable as dependent from allowable base claims. Reversal of the rejection of these pending dependent claims is therefore further respectfully requested.

Claim 11 presently stands rejected over Aleksic et al. (US 6,020,921) in view of Warren et. al. (US 6,034,300) under 35 USC § 103(a).

Alkesic, and its differences from the present invention, are discussed in detail above in reference to the §102 rejection, and that discussion is again hereby incorporated by reference. Warren is used to show that a personal computer system is known to comprise a processor, a bus, a main memory, a system controller, and a graphics controller.

Because claim 11 recites a “digital processor that computationally applies gamma correction via computational calculation to the digital YUV signal”, which has previously been shown to be lacking in the Alkesic reference here used to anticipate such a digital processor, this claim is further believed to be in condition for allowance. Reversal of the rejection of claim 11 is therefore respectfully requested.

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CONCLUSION

Applicants believe the claims are in condition for allowance and request withdrawal of the rejections to the pending claims. It is respectfully submitted that the cited art neither anticipates nor renders the claimed invention obvious and that the claimed invention is therefore patentably distinct from the cited art. It is respectfully submitted that claims 1-11 should therefore be allowed, and reversal of the Examiner's rejections of claims 1-11 is respectfully requested.

Respectfully submitted,

Mark Rapaich

By his Representatives,

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Mar. 24 '03

By

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Candis B. Buending

Name

Signature

Candis B. Buending

Appendix 1: Claims on Appeal

1. (Amended) A personal computer system comprising:
 - a video source capable of providing a digital YUV video signal;
 - a video output capable of connecting to a video display device;
 - a digital processor computationally employing a corrective algorithm via computational calculation that applies gamma correction to the digital YUV signal provided by the video source and provides a corrected signal to the video output.
2. The personal computer of claim 1 wherein the digital processor further employs a corrective algorithm that corrects at least one of color saturation correction, tint correction, brightness correction and contrast correction.
3. The personal computer system of claim 1, further comprising a software module for user configuration of the digital processor that corrects the digital YUV signal.
4. The personal computer system of claim 1, wherein the video sources comprise multiple sources selected from the group consisting of MPEG, NTSC, CVD, CD and satellite broadcast digital video signals.
5. The personal computer system of claim 2, wherein the digital YUV video signal is encoded with a correction factor that is compensated for in applying the corrective algorithms to the digital YUV signal.
6. (Amended) A process comprising the steps of:
 - receiving a YUV digital video signal;
 - computationally applying gamma correction to the digital YUV signal via computational calculation within a personal computer; and
 - providing a corrected digital YUV signal to an output for connection to a display device.

7. The process of claim 6 further comprising applying correction to the digital YUV signal such that the correction comprises at least one of color saturation correction, tint correction, brightness correction and contrast correction.

8. The process of claim 6, further comprising a step of configuration of a software module that configures the digital signal processor that corrects the digital YUV signal.

9. The process of claim 6, wherein the received YUV digital video signal is provided by video sources selected from the group consisting of MPEG, NTSC, CVD, CD and satellite broadcast digital video signals.

10. The process of claim 6, wherein the received digital YUV video signal is encoded with a correction factor that is compensated for in applying gamma correction to the digital YUV signal.

11. (Amended) A personal computer system comprising:

- a processor;
- a bus;
- main memory;
- a system controller;
- a graphics controller;
- a video source capable of providing a digital YUV video signal;
- a video output capable of connecting to a video display device; and
- a digital processor that computationally applies gamma correction via computational calculation to the digital YUV signal provided by the video source and provides a corrected signal to the video output.